

知 Why does the iphone terminal prompt "The wireless LAN does not seem to be connected to the Internet"?

Wireless 龚训杰 2020-12-11 Published

Network Topology

NULL

Problem Description

Many sites encountered the pop-up "Wireless LAN does not appear to be connected to the Internet" during the use of the iphone terminal. At this time, the wifi icon remains. After clicking "Continue to try to use the wireless LAN" at the bottom of the pop-up window, the wireless network can be used normally. And the phenomenon happens occasionally, the more the new iPhone, the more common the phenomenon.

Process Analysis

In response to this problem, tracking multiple problem terminals found that almost all of these terminals are abnormal pop-up windows after IOS 13.X version. For this reason, the laboratory has set up an environment for analysis and testing.

The test terminals are the new IOS 14 Apple terminal, IOS 12 Apple terminal, and an old Apple terminal upgraded from IOS 12 version to IOS 13.6. Next, the test was carried out, and the test found that except for the IOS 12 terminal, there was no abnormal pop-up window, the other two models appeared, but the probability is extremely low.

When the pop-up window appears, check the terminal status on the device, the ping test is normal, and the sending of WeChat messages can be received in the pop-up state, indicating that it has nothing to do with wireless devices, authentication methods, wireless networks, and compatibility with Apple phones.

Through the comparison of captured packets, it is found that when the pop-up window prompts, the terminal after the IOS 13 version is detecting the message of the Apple server netcts.cdn-apple.com, but the terminal of IOS 12 has not sent this message detection from beginning to end:

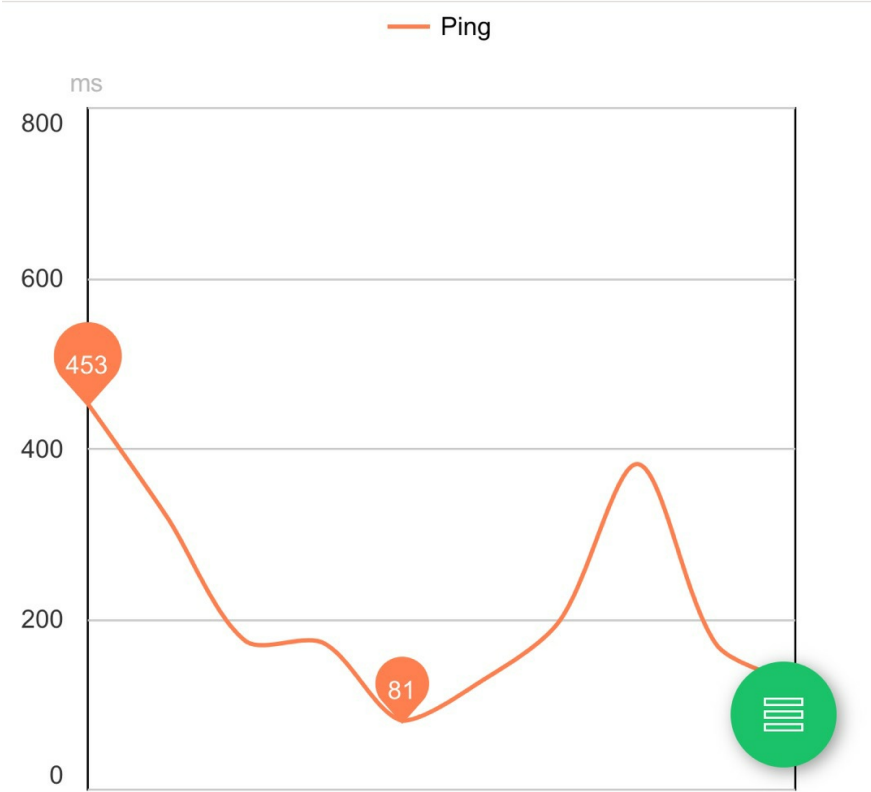
```
Frame 114909: 146 bytes on wire (1168 bits), 146 bytes captured (1168 bits) on interface 0
Ethernet II, Src: d4:61:fe:9c:f6:e0 (d4:61:fe:9c:f6:e0), Dst: ac:74:09:67:92:18 (ac:74:09:67:92:18)
Internet Protocol Version 4, Src: 172.32.3.1 (172.32.3.1), Dst: 172.32.3.254 (172.32.3.254)
User Datagram Protocol, Src Port: 43022 (43022), Dst Port: capwap-data (5247)
Control And Provisioning of Wireless Access Points
Ethernet II (VLAN tagged), Src: 90:b0:ed:98:e9:77 (90:b0:ed:98:e9:77), Dst: 04:d7:a5:11:f4:48 (04:d7:a5:11:f4:48)
Internet Protocol Version 4, Src: 172.31.3.4 (172.31.3.4), Dst: 114.114.114.114 (114.114.114.114)
User Datagram Protocol, Src Port: 50412 (50412), Dst Port: domain (53)
Domain Name System (query)
Response In: 1156191
Transaction ID: 0xef19
Flags: 0x0100 (Standard query)
Questions: 1
Answer RRs: 0
Authority RRs: 0
Additional RRs: 0
Queries
www.netcts.cdn-apple.com: type A, class IN
Name: www.netcts.cdn-apple.com
Type: A (Host address)
Class: IN (0x0001)
```

```
Frame 114909: 146 bytes on wire (1168 bits), 146 bytes captured (1168 bits) on interface 0
Ethernet II, Src: d4:61:fe:9c:f6:e0 (d4:61:fe:9c:f6:e0), Dst: ac:74:09:67:92:18 (ac:74:09:67:92:18)
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Domain Name System (query)
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Transaction ID: 0xef19
Flags: 0x0100 (Standard query)
Questions: 1
Answer RRs: 0
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Additional RRs: 0
Queries
www.netcts.cdn-apple.com: type A, class IN
Name: www.netcts.cdn-apple.com
Type: A (Host address)
Class: IN (0x0001)
```

Later, I confirmed with Apple that netcts.cdn-apple.com is a new domain name after upgrading iOS 13.x. Then the next step is to test the domain name. First, use the terminal to ping Baidu to test, and no packet loss occurs:

iPhone 6s Plus 差 www.baidu.com
2020-12-08 17:36:24

23	23	0.00 %	202 ms
发送个数	接收个数	丢包率	平均延时



Next, Ping "netcts.cdn-apple.com" found serious packet loss:



netcts.cdn-apple.com

完成



iPhone 6s Plus



netcts.cdn-apple.c...

暂停 ping

20

发送个数

14

接收个数

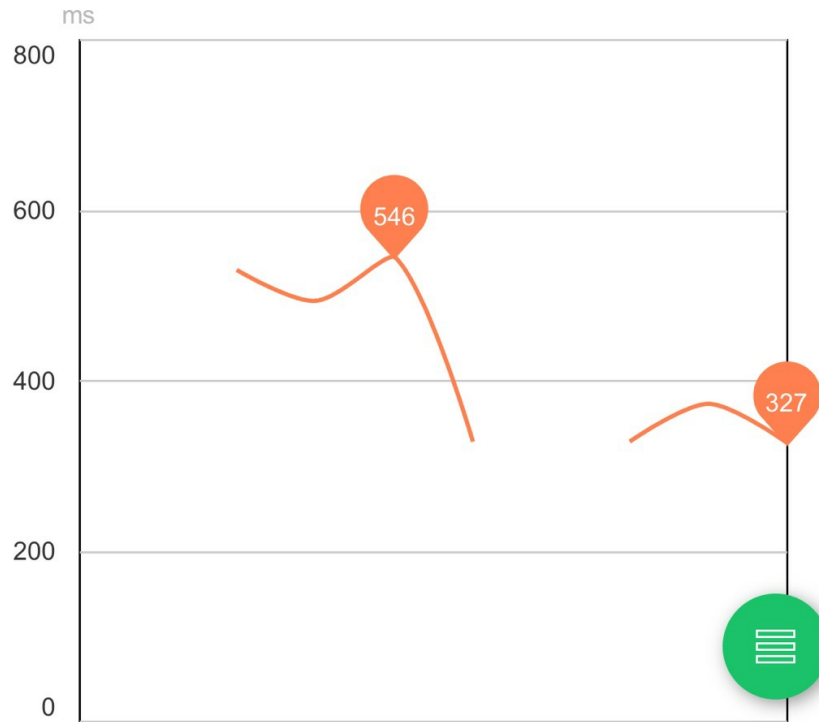
30.00 %

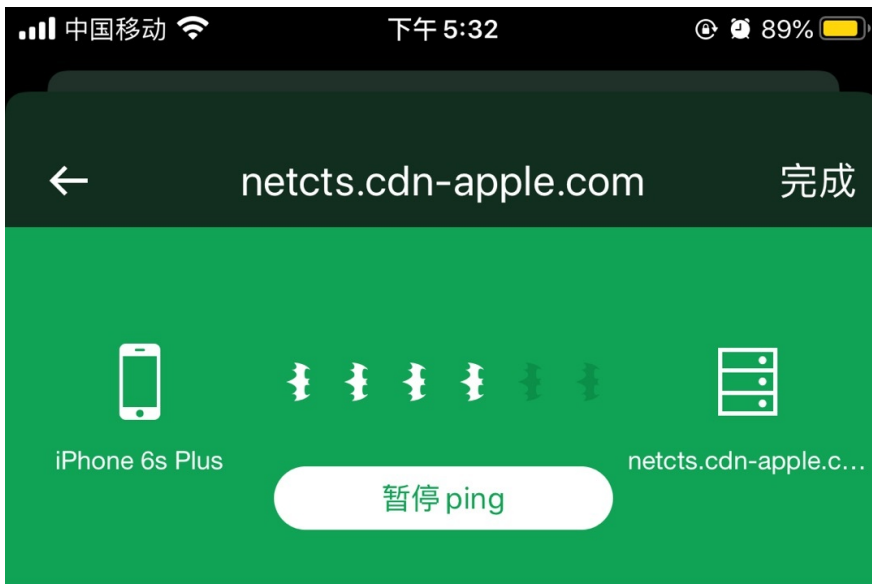
丢包率

295 ms

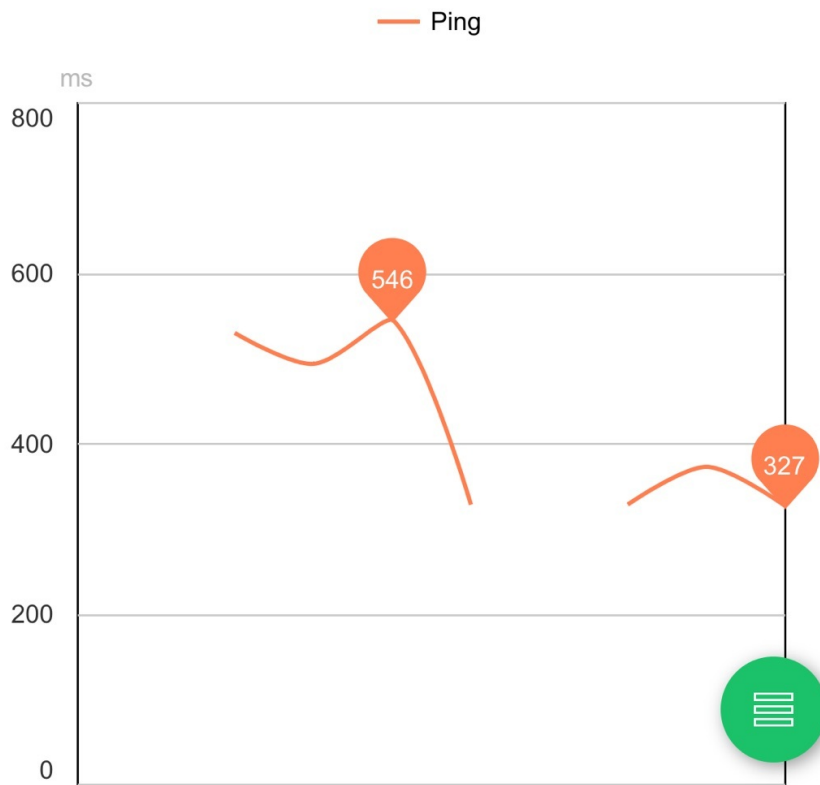
平均延时

Ping





20 14 30.00 % 295 ms
发送个数 接收个数 丢包率 平均延时



While checking the packet capture process, when there is no pop-up window, the detection of the domain name can get a normal response, but when the abnormal pop-up window appears, the detection abnormality is found, and then the terminal tries to detect multiple times without success. In the end, the mobile phone thinks that the network is abnormally popped up.

```
784 2020-12-08 17:25:16.750739 172.31.3.4 114.114.114.114 DNS 161 Standard query A jtrn.is.autonavi.com.gds.alibabadns.com
862 2020-12-08 17:25:16.782302 172.31.3.4 114.114.114.114 DNS 142 Standard query A netcts.cdn-apple.com
932 2020-12-08 17:25:16.815003 114.114.114.114 172.31.3.4 DNS 177 Standard query response A 140.205.31.69
1112 2020-12-08 17:25:17.014811 114.114.114.114 172.31.3.4 DNS 235 Standard query response CNAME netcts.cdn-apple.com.edgesuite.net CNAME
1272 2020-12-08 17:25:17.209727 172.31.3.4 114.114.114.114 DNS 148 Standard query A updates-http.cdn-apple.com
1273 2020-12-08 17:25:17.209730 172.31.3.4 114.114.114.114 DNS 135 Standard query A www.apple.com
1274 2020-12-08 17:25:17.209733 172.31.3.4 114.114.114.114 DNS 136 Standard query A www.icloud.com
1275 2020-12-08 17:25:17.209734 172.31.3.4 114.114.114.114 DNS 135 Standard query A cli.apple.com

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Internet Protocol Version 4, Src: 114.114.114.114 (114.114.114.114), Dst: 172.31.3.4 (172.31.3.4)
User Datagram Protocol, Src Port: domain (53), Dst Port: 57152 (57152)
Domain Name System (response)
[Request In: 862]
[Time: 0.102439000 seconds]
Transaction ID: 0xc9cd
Flags: 0x8180 (Standard query response, No error)
Questions: 1
Answer RRs: 4
Authority RRs: 0
Additional RRs: 0
Queries
netcts.cdn-apple.com: type A, class IN
Name: netcts.cdn-apple.com
Type: A (Host address)
Class: IN (0x0000)
Answers
netcts.cdn-apple.com: type CNAME, class IN, cname netcts.cdn-apple.com.edgesuite.net
netcts.cdn-apple.com.edgesuite.net: type CNAME, class IN, cname a1744.dscg2.akamai.net
a1744.dscg2.akamai.net: type A, class IN, addr 23.60.97.40
a1744.dscg2.akamai.net: type A, class IN, addr 23.60.97.8
070 00 00 00 06 6e 65 74 63 74 73 09 63 64 6e 2d .net cts.cdn-
080 61 70 00 6c 65 03 63 6f 6d 00 00 01 00 01 c0 0c apple.co m.....
090 00 05 00 01 00 00 ec 8b 00 24 06 6e 65 74 63 74 ..... $.netct
```

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784 2020-12-08 17:25:16.750739 172.31.3.4 114.114.114.114 DNS 161 Standard query A jtrn.is.autonavi.com.gds.alibabadns.com
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Queries
netcts.cdn-apple.com: type A, class IN
Name: netcts.cdn-apple.com
Type: A (Host address)
Class: IN (0x0000)
Answers
netcts.cdn-apple.com: type CNAME, class IN, cname netcts.cdn-apple.com.edgesuite.net
netcts.cdn-apple.com.edgesuite.net: type CNAME, class IN, cname a1744.dscg2.akamai.net
a1744.dscg2.akamai.net: type A, class IN, addr 23.60.97.40
a1744.dscg2.akamai.net: type A, class IN, addr 23.60.97.8
070 00 00 00 06 6e 65 74 63 74 73 09 63 64 6e 2d .net cts.cdn-
080 61 70 00 6c 65 03 63 6f 6d 00 00 01 00 01 c0 0c apple.co m.....
090 00 05 00 01 00 00 ec 8b 00 24 06 6e 65 74 63 74 ..... $.netct
```

Solution

The reason for the failure is that iPhone has added a new network detection mechanism in iOS 13.x: netcts.cdn-apple.com.

When the server does not answer due to unstable network or other reasons, the iPhone mistakenly believes that the Wi-Fi network is abnormal, and a pop-up window reminds the user. Since the Apple manufacturer has not clearly resolved the unstable interaction with this server, the abnormal pop-up window appears, and you can only manually click to continue to use to restore the normal experience.